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ABSTRACT

The Information Age is being driven by an acceleration of technological breakthroughs including microcomputers, cable television, electronic publishing, fiber optics, satellite communications, videotext, online database searching, high-density CD-ROM storage, and robotics. A new intellectual skill that will enable us to be masters of new communications and information technologies is needed. This skill--which is called information literacy--has been written about from a number of different perspectives by information industry spokespersons, librarians, educators, and communications researchers. Some characteristics of information technology might actually be impediments to the attainment of information literacy for many: (1) generation of an over-supply of information; (2) cost of information machines; (3) cost of information access; (4) invisibility of the information revolution to the average person; and (5) the "de-massification" of mass media. Libraries in secondary and higher education often provide the needed focus for information literacy programs. The public library can provide similar programs for the general population; however, underuse and underfinancing may hinder such efforts. It is necessary to make the components of the online information environment more visible and accessible to potential users--those who are pre-information literate. Not to do so in an active, concerted manner will mean that information needs for significant parts of the population will remain unidentified, unexpressed, and unmet. Twenty-five references are listed. (MES)

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THE IDEA OF "INFORMATION LITERACY" IN THE AGE OF HIGH-TECH

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Introduction

The "Information Age" is upon us. This third and arguably most transformational of the industrial/technological revolutions that have taken us from farm, to factory, to electronic workplace, is being driven by an acceleration of technological break-throughs, nearly all of which involve the use of powerful electronic microprocessors. A partial listing of these technological innovatons would include: microcomputers, cable TV, electronic publishing, fiber optics, satellite communications, videotext, online database searching, high-density CD-rom storage, and robotics. Whether or not we have yet incorporated these innovations into the conduct of our daily activities, most of us have acquired at least a passing awareness of what they might do for us. What they all do best, of course, is process, store, retrieve, and transmit huge amounts of information at extremely high speeds.

As Porat (1978) documented, the development and use of these new information and communication technologies have already brought about a significant change in the basic make-up of the economies of the world's technologically advanced countries. While Porat's definition of what constitutes the information sector of the economy has been questioned by many, there's little debating that the trend from a manufacturing to an information-based economy is advancing steadily and inexorably. Porat, of course, is only one of many academicians, social theorists, forecasters, and popular futurists who have attempted to profile

the change process underway and to describe in some detail what life in the Information Age might be like. Indeed, if any one thing distinguishes this transitional period from like periods that have come before it, it is the degree of reflexive scrutiny that accompanies our passage from one stage to the next. It's befitting of the dawning Information Age that we are being relentlessly informed about information's role as the major driving force that will bring us to a new social order--one that's been characterized in terms ranging from Orwellian to utopian depending on which forecaster one chooses to believe.

The Information Society - Good or Bad?

Yoneji Masudo (1985), creator of the Japanese Plan for the Information Society, speaks rhapsodically of a still distant "computopia," a kind of global civil society in which knowlege production has replaced capital as the prime mover of a rational, goal-centered world economy. As Masudo describes it, this computopia will consist of "multi-centered voluntary communities of citizens participating in shared goals and ideas and flourishing simultaneously throughout the world." We have something of a foretaste of Masuda's wondrous self-actualizing paradise of the mind if we take a look at the new paradigm of success in late twentieth century America in the form of what we might call the "computer life-style." The practitioner of the "computer life-style" is a kind proto-information worker, very well educated, most likely a computer commuter who does much of his work in the home--someone who perhaps does not work in a direct managerial capacity but whose work is essential to most

management functions. The computer life-stylist is noted for possessing a very decisive and rational intellect. He or she is an extremely well-informed consumer who efficiently use various electronic tools to ease the small but numerous burdens of daily life, and engages in some form of intense physical activity for "training-out" the stresses and strains of vigorous mental work. (Kamman, Sargent-Pollock, Little, 1981)

Taking a considerably less sanguine view of our information society future and focusing on those less likely to be its beneficiaries is Mendlesohn (1979) who warns about the "dysfunctional consequences" of the new means of communication including more insidious threats to privacy, the propensity for propagandistic messages, the futher fractionalizing of our social environment, and so on. Schiller (1981) is yet another forecaster who sees the emerging technology not as providing the tools of personal liberation but rather the instruments of continued economic dominion to be used most effectively by the existing corporate elite. Comparing them, in effect, to the robber barons of the late 1800s, he sees today's information/communication conglomerates exproriating innovations and information developed through publicly funded research and using them for private corporate gain. What will result according to Schiller is a widening of the gulf betwen the information haves and have-nots.

The Call for Information Literacy

What unites most forecasters is a sense that the full benefits of an information age--primarily economic in nature--will be available only to those possessing the necessary tools.

In fact, if there is one common prescriptive thread that runs through the writings of futurists and forecasters, it is the repeated admonition that what we badly need is a new intellectual skill, an "information literacy," that will enable us to be masters of the new communications and information technologies, whether for our personal success or wellbeing, for the greater good of the larger information society, or for the benefit of the power elite in whose employ we might well find ourselves. Information literacy has been written about from a number of different perspectives by information industry spokesmen, by librarians, by educators, and by communication researchers, each of whom casts a characteristically different light on the issue.

The View of the Information Industry

What do we mean by information literacy? Defining the concept to any degree of precision seems a major problem. Probably the earliest use of the term "information literacy" was in 1974 in a proposal to the National Commission on Libraries and Information Science authored by Paul Zurkowski, then president of the Information Industry Association (IIA). In his report he characterized the information literates as those who "have learned techniques and skills for utilizing the wide range of information tools as well as primary sources in molding information-solutions to their problems." What those techniques, skills, and tools are was never fully delineated by Zurkowski. Nevertheless, estimating that only about one-sixth of the U.S. population was information literate, Zurkowski called for a "national program to achieve information literacy by 1984."

It should be pointed out that information literacy was not the only thing on Zurkowski's mind. A far more compelling item on his agenda is reflected by his statement contained in the same report that "The marriage of the profit motive to the distribution of information is the single most important development in the information field since Carnegie began endowing libraries with funds to make information in books more widely available to the public." (Those of us who hold libraries in high regard perhaps can be thankful that Carnegie didn't hold to the views of Zurkowski.) Zurkowski was equally concerned about copyright and its relationship to resource sharing among libraries, going so far as to suggest that libraries were competing unfairly with the commercial information market, thereby putting at risk the economic viability of commercial information producers and packagers--presumably, by implication, threatening the diffusion of information literacy. This first attempt to define information literacy was thus joined with a vigorously held view that information is a commodity and not a public good freely available to all. While these views aren't necessarily mutually exclusive, they suggest a measure of incompatibility as subsequent writers would point out.

Before the end of the decade of the seventies, Garfield (1979), another information industry spokesman was heralding the arrival of the "information conscious society," a necessary prelude to the full blossoming of the "information society." What would distinguish one from the other would be the widespread information literacy of the latter. "When people in all parts of society have rapid access to the information they want, we can

say that the information conscious society has become the information society." In Garfield's view, the surest means for the diffusion of information literacy would be the wholesale adoption of home computers which, as electronic worksavers and information access tools, would help in overcoming resistance to learning in ways that, for example, the book heretofore hadn't. Conceptually, this view that information literacy, and learning itself for that matter, could be driven by technology does little to advance the definition of information literacy.

In a comprehensive four-volume survey of the U. S. information infrastructure published in 1982 by the Information Industry Association (Horton and Willard, 1982) the IIA characterized information literacy as a "gap which . . . divides the information sophisticate who knows how and when to use the technology and does so easily and efficiently from the information naive who cannot use the technologies and hence has limited access to knowledge resources." The key to information literacy in this view will be the role played by "knowledge centers." Such knowledge centers appear to be--at least in the earlier stages of the Information Age--nothing more nor less than libraries. Ultimately however, the office--and then the home itself--will become a knowledge center as more and more information will be remotely accessed. Somewhere along the way, for-profit "information centers" will develop to serve special consituencies that can afford to pay for information. Just as Zurkowski had done 10 years before, this report admonishes libraries to reflect the real costs of the information

marketplace, going so far as to describe the public library as a "cocoon . . . trapped by the rhetoric of free service." In fairness the report does raise very legitimate and troubling questions for libraries which face the twin threats of rapidly escalating costs (of both old technologies--the book and other conventional print materials--and new technologies involving computers and database access) and dwindling economic support. It would appear that some users of library services will inevitable have to pay--especially those that require access to more highly specialized information sources. However, to suggest that libraries would be wise to rush to embrace a free market model in the financing and pricing of their services is to lack an understanding of the historical mission of libraries to serve constituencies and a social role that are otherwise not served by the open market. A market model of information delivery would have to operate on the assumption of rational choice, and in doing so would have to take universal information literacy as a given, rather than as a problem requiring some application of effort or accomodation external to the "invisible hand" of the marketplace. The non-information literate would likely be left by the wayside.

F. W. Horton (1983), co-compiler of the 1982 IIA Survey, attempted to further explain information literacy in a subsequent article that contrasted information literacy and computer literacy and postulated a hierarchy of information needs that paralelled that of Maslow's hierarchy of human needs. On the lowest level of the hierarchy one manifests a need for coping information which would include police and fire services and

various hotlines for health and social services. The other five levels in order would include helping information, enlightening information, enriching information, and finally at the pyramid's top--corresponding to Maslow's level of self-actualization--would be edifying information. According to Horton, it is the task of the information society to move individuals up the information pyramid. To accomplish that, he, like Zurkowski, calls for a national information policy which would endeavor to raise public awareness about how machine-aided information-handling systems would enable us to overcome the "literacy gap." While Horton's model of an information needs hierarchy is interesting as a description of the function of various levels of information, he fails to spell-out the further details of how he might link this model to his proposed national information policy or how such a policy might be carried-out.

Factoring-in Technology

The difficulty with these calls for information-literacy is that they are just that--admonitions and exhortations--but often not a great deal more, especially in terms of delineating a process by which those who are not otherwise in a position to be information literate will become so. Those calling for information literacy seem to assume that such literacy will rapidly follow the diffusion of machinery. The process by which people become information literate is thus often seen as a spontaneous by-product of their exposure to information and the instruments of its access and delivery. At this point, we might pause to wonder whether the diffusion of information literacy is

such a critical question after all, or is it just so much self-promotion and image-building on the part of the information industry? It is tempting to say that information literacy is so ill-defined as reflected in many of the writings of those associated with the information industry as to render the idea functionally meaningless. However, even if information literacy is at best a slippery term is it not getting at an idea whose implications are quite far-reaching and even beyond the conceptual framework of those in the IIA who initially gave the term its currency? In other words, can we really afford to ignore the issues it raises?

In an effort to clarify that question, it is important to focus on the characteristics of our "cutting-edge" technologies. There is considerable evidence to suggest that instead of lowering barriers to the acquisition of information skills needed to access information in personally and socially relevant ways they are instead creating new obstacles to the attainment of information literacy for many. What are some of the broad characteristics of the new information technology that might serve to impede the acquisition of the intellectual skills needed to access and use information in effective and meaningful ways?

1. Generation of over-supply of information -- New communication technologies have a way of greatly accelerating the growth of new information. Numerous writers have contended that the availability of more information is not necessarily a good thing as it can lead to still greater uncertainty. Instead of freeing people to make rational choices "information overload" can ultimately lead to a kind of decision paralysis in the face

of too much choice. (Halloran, 1983)

2. The cost of information machines -- Videotext and electronic publishing may give us more information and more selective information that can be tailored to our individual needs, yet they also require use of a microcomputers and microcomputer software and related hardware to access. While the cost of personal computers, modems, and communications software has been dropping quite rapidly, it is still positioned well beyond the discretionary budgets of most households. We certainly haven't seen the universal adoption of home computers as Garfield had projected.

3. The cost of information access -- The time-based access and communications charges of most electronic databases are substantial. Database searching also exhibits a kind of synergetic economy of use in that the more one can afford to search database systems the more efficiently and therefore cost-effectivly one is able to do so. Those who lack the skills necessary to tap the new channels of electronic information are also likely to be those who lack the means to pay others to do so for them. (Steuart, 1982) There are publicly supported facilities, including schools and libraries, which are attempting to provide some means of access to these costly new tools, but that access is neither universal nor equitable and is unlikely to become so anytime soon. In fact as we shall see, libraries, while seemingly having the greatest potential for providing avenues of access to and understanding of the new communication and information technologies, face some very difficult challenges

in doing so--and not just from those calling for pay service.

4. The invisibility of the information revolution -- While the information revolution is much touted, many key components of the information technology infrastructure remain invisible to the average person--certainly the average blue-collar worker. Unlike the factories and the large-scale transportation systems of the industrial age, the centers of information production and the means of transmission in the information age--at least those outside of much of the mass media--remain little noticed. (Burchinal, 1977) What then happens to the impetus for acquiring new work skills that might otherwise have application in the information-based labor market?

5. "De-massification" of the mass media -- The '"de-massification" of the mass media, while providing greater diversity and selectivity of information and entertainment channels for all, on the other hand greatly fragments the media's messages by attempting to serve a "chaos of specialized interests." (Marien, 1983) This not only further isolates one group from another, but also advances the likelihood that a kind of hierarchy of information channels will evolve with high end channels offering real information for the economic and intellectual elite and the low end channels offering trivialized pseudo-information in which entertainment values take precedence over the quality and utility of the information being disseminated. Such a trend would paralell developments in TV programming which, itself, barely has enough "mass" remaining to provide some measure of shared experience. It would certainly appear then that our socio-economic ghettos that lock people into

restrictive subcultures of behavior, outlook, and social access, are likewise our "information ghettos" as Childers (1975) as described them.

Schooling for Information Literacy

If new information and communication technologies are then more a part of the problem than a part of the solution, how then do we prepare people to comprehend and to deal with the innate complexities of those technologies? As is so often the case when we look for social remedies, we turn to our schools. Educators have been fairly quick to recognize the need to prepare students for the Information Age. After years of perceived decline especially in the areas of science and technology education, schools have seized the opportunity afforded by calls for renewal of excellence and are attempting to re-invigorate curricula at all levels by returning to the "basics" and at the same time introducing the use of the computer. For some years, however, educators have been captivated by the notion of computer literacy--with the emphasis on programming skills--and have only recently begun to recognize the greater value of teaching the broader uses of computers as tools for information access. Daniel Watt, one of the developers of LOGO, the simplified computer language used to teach children about computer functions, has proposed four fundamental computer skills for children one of which is "The ability to apply computer skills to information retrieval, communication, and problem-solving." (cited in Levin, 1983) The New York State Regents in their 1984 Action Plan to Improve Elementary and Secondary Education Results

in New York essentially incorporate Watt's views into statewide educational planning policy. One of the responses to that mandate has been the publication of a draft Secondary Library Media and Information Skills Syllabus, Grades 7-12 by the State Education Department's Bureau of Curriculum Development. It provides detailed curricular strategies for teaching information skills including such things as exposing students as early as in the seventh grade to the process of online information retrieval.

Libraries for Information Literacy - Promises and Problems

Libraries in secondary and higher education often provide the needed focus for information literacy programs as the draft Syllabus demonstrates. For the better part of the past two decades, academic librarians have been developing ambitious bibliographic instruction programs and working with almost missionary fervor to have them incorporated into college curricula, either as separate credit courses or as modules in introductory writing and research courses. Even before the release of the aforementioned syllabus, one of the most detailed attempts to define information literacy in a functionally relevant way comes from a bibliographic instruction librarian working at the college level:

> Information Literacy:
> A Working Definition
>
> General definition: Information literacy is the ability to effectively access and evaluate information for a given need.
> Characteristics of information literacy:
> An integrated set of skills and knowledge
> skills (research strategy, evaluation)
> knowledge of tools and resources
> Developed through acquisition of attitudes
> persistence

attention to detail
caution in accepting printed word and
single sources
Time and labor intensive
Needdriven (a problemsolving activity)
Distinct but relevant to literacy and computer literacy
Information literacy is not:
(Only) knowledge of resources
Library dependent (as a sole source)
Information finding (also understanding and evaluating)
(Breivak, 1985)

While such instructional efforts have had as their primary focus the effective use of library resources for carrying-out specific classroom assignments, they are increasingly taking a broader, more problem-oriented view of information-seeking skills--one that looks beyond the library to the larger social and political context in which information gets produced and disseminated. (Fink, 1986) Now that many academic libraries have online public access catalogs or provide user access to online database services like DIALOG or to online bibliographic networks such as OCLC (Online Computer Library Center), their bibliographic instruction programs tend to emphasize access to information in an expanded online environment. While schools and academic libraries are thus becoming increasingly involved in formalized instructional programs to teach at least an aspect of information literacy, can the same be said of public libraries in terms of reaching those in the general population who are beyond traditional schooling?

Some public libraries are as far-advanced into the online information era as are their academic counterparts. They provide access to virtually the same databases as those commonly used in academic libraries and have, in many instances, developed local

community information and referral databases that can be accessed by home computers. Many public libraries are also supporting, and even teaching, the use of personal computers for information access and other functions, particularly to those users that might not otherwise have such access in the home. One could easily envision a public library serving as a kind of dynamic instructional and informational laboratory for its community, giving its users the opportunity to try-out new tools for information retrieval and to explore the functionality of various new databases and online information products they might later want to consider for home use. Why the information industry would see this as a threat rather than as an opportunity is puzzling. At least one public library system, Pikes Peak in Colorado, has been greatly written about as a kind of prototype electronic community information center and model for public libraries elsewhere. (Dowlin, 1984) There are a number of cross-currents, however, that will likely limit the universal adoption of such a model of public library service.

As Horton (1982) rightfully asserts, the public library is "undervalued, underfinanced, and underused by present society." Researchers have generally found that the public library is in fact used only by rather limited segments of society--largely students, housewives, and professionals--and often not for the purpose of gathering specific information. (Chen, 1982) A study of blue-collar information use found that libraries were a distant fourth in a list of relied-on information sources, trailing personal contacts; TV and newspapers; and radio, magazines, and books in that order. (Childers, 1976) The

solution offered by the IIA would be the eventual replacement of the institution of the free public library with the fee-based knowledge centers earlier referred to. These would presumably provide some form of subsidized information access for those demonstrably unable to afford it otherwise. Such a view is certainly consistent with current national policy which seeks to limit drastically publicly funded services so that only those that are considered most "essential" are provided. Even if such "knowledge centers" were able to come up with a workable formula for holding down the cost barriers to information access for the "truly needy," would they not be institutionalizing what amounts to an attitudinal barrier to the acquisition of information-seeking skills among those same "needy?" However limited, there is at least some interplay at present between the public library and those few among the information disadvantaged that it manages to reach and attempts to serve. By making information a commodity--by allowing market forces alone to determine what information will be made available and in what form--will we not simply "freeze-out" those we might best describe as pre- or semi-information literate?

In addition to being "undervalued, underfinanced, and underused," the public library has traditionally been undersold as well. Functionally, it is still often thought of as a "storehouse" of books rather than as a point of virtually unlimited access to most available published information. While libraries have changed at least as much as the rest of our social landscape, the anachronistic perception lingers. Until libraries

are understood by policy-makers and opinion-shapers as vital resources, and until libraries, through concerted effort, do more to alter these perceptions by strategically packaging and marketing "information access" as their primary product, change is likely to be slow in coming. Libraries would likewise do well to redouble their efforts to reach across the transactional barriers to those who remain the "information poor." In doing so, however, this would be one area in which the focus most assuredly needs to shift from the technology and the information mass to a fuller analysis and understanding of the needs and problems of the potential information users.

Shifting the Focus

As Childers' extensive studies (1975, 1976) on information seeking behavior among those in lower socio-economic brackets demonstrated, there is a kind of critical mass of factors that "predispose" people to use information and to value it as an element of utility in the problem-solving process. Among the factors that block such a predisposition are a lack of cognitive skills including reading and simple communication skills (it needs to be pointed out in this context that this is one area in which public libraries have been in the forefront of providing programs for adult literacy in recent years), dependence on one-way mass-media communication channels, reliance on familiar personal channels of communication to the exclusion of formal and impersonal channels, and a fatalistic attitude that sees one's condition as relatively unchangeable. Childers (1982) calls for "testing information products and services against the factors of predisposition," which would result in fewer such developments as

"microform revolutions that never catch on, community access cable TV channels that go unused, videotext services that are undersuscribed," and so on. A similar perspective is reflected by MacMullin and Taylor (1984) who hold that our models for analyzing information needs are insufficient and in many ways irrelevant to the real uses to which information is put. Instead of being exclusively content-driven or--reflecting our fascination with information machines--technology-driven, the designs of our information systems need to take into account a host of new variables that go well beyond the question of: 'What do you want to know,' to incorporate further questions such as: 'How do you need to know it . . . Why do you need to know it . . In what form do you need to know it . . . What do you already know . . . What do you anticipate finding . . . How will this help you . . . What does your problem look like.?'

Viewed in this light, the issue of information literacy becomes considerably more complex. It suggests that there are multiple dimensions to information seeking and information use that exist well beyond the innate characteristics of the information message and the technology of its delivery. Not only do we need to educate the information user in the appropriate uses of information tools, we also need to work into the design of those tools and services a multitude of factors--problem dimensions in the words of MacMullin and Taylor--brought by the user to the information transaction. We may one day see the development of smart information machines that can adjust for and perhaps even anticipate various environmental and user conditions

that affect information-seeking behavior. In the meantime, the information systems designers would do well to take into account the degree to which the "information traits" (to use another of MacMullin and Taylor's terms) of these systems are appropriate for addressing the particular "problem dimensions" brought by given information users.

Information and Communication

A good reference librarian intuitively measures most, if not all, of these problem dimensions and information traits when fielding a reference question. Such a transaction has rightfully been called "one of the most complex acts of human communications" inasmuch as "one person tries to describe for another person not something he knows, but rather something he does not know." (Taylor, 1978) It is the job of the reference librarian to facilitate the process of analysis and communication by which the information seeker is able to identify and convey his or her need. If we take the reference transaction as a kind of paradigm of information exchange, we find that the elements of communication are the most significant factors in the success of the transaction.

It is a concern for these factors of communication that figure so prominently in the writings of Childers, MacMullin, and Taylor that seems so conspicuously absent from the views of information literacy expressed by those associated with the information industry. Halloran (1983) sees such unvarying concern on the provision of information to the exclusion of any consideration for the manner in which information is exchanged, characteristic of many information scientists. As a

communications researcher, he brings a host of questions to any analysis of how technology may affect the process by which information gets communicated. Most of these have to do with the social context in which the social exchanges occur. For example, to what extent do we allow technology to determine needs rather than serve them? What measure of overlap is there between the frames of reference of the information provider and the information receiver? What happens to information once it is conveyed to the receiver; does the receiver have the means at his disposal to act on the information? Who chooses the messages and controls the message channels or, to paraphrase McLuhan, "to what degree is the medium the system?" As might be expected, Halloran sees an "unholy mixture of technology and market determinism" operating in the absence of any kind of rational communications or information policy. He does allow, however, that many of our technological innovations could make greater access and further democratization possible, but on the basis of political and economic choices taken, not by virtue of technology alone.

Information Literacy - Broader Implications

What finally can be said about information literacy, and how best to achieve it? As a first step we might do well to dispel the notion that information literacy is something that comes neatly packaged with information technology. Not only are there practical limits to the diffusion of information technology, there are still greater limitations on the ability of information machines, in and of themselves, to instruct and to inform.

Delineating a list of information competencies as the

educational system in New York is attempting to do is a significant first step, not only in dealing with a specific educational need but, more importantly if less directly, also in raising public perception about concepts of information use. Wisely, educational leaders in the state are recognizing that:

> Library media and information skills are rarely learned when taught in isolation from a purpose, either classroom related or personal. The development of these skills must be coordinated and integrated within the context of the school curriculum, and students must learn to apply these skills to a variety of learning situations. (New York State Education Dept., 1986)

The key notion here is that information skills are not well learned "in isolation from a purpose." The real needs of information users--be they high school students, advanced researchers, or blue collar adults--and the context in which such needs manifest themselves are often more important than the information itself in determining the ultimate utility of an information exchange.

What about those who are beyond "schooling" at this point? What about the thousands of potential "adult learners" whose information needs are largely inchoate and whose information skills are mostly undeveloped? With more and more workers experiencing the dislocations of the workplace and the need to build new skills, community colleges will have a growing role in their education, of which an increasingly significant part will be the learning of information skills. Developing information skills--becoming information literate--is not something, however, that's completed within the limits of a school term, whether at the secondary school level, in the community college, or beyond. Just as we increase our language

and expression skills, we become more masterful in our use of information over time. Along with the traditional, basic literacy skills, information literacy forms the common prerequisite for "lifelong learning."

In our infatuation with information technology, we should not by default advance the notion that the ability to seek out, to evaluate, and to apply information is something reserved for the technologically sophisticated. We need to continue to learn more about the user context of information need. Our information systems and our efforts at teaching information skills need always to relate to that context and use that as the starting point for linking information users with increasingly complex and sophisticated tools of information access. In that respect and in the context of public library service, we need to make much more highly visible and accessible to "potential" users--those who are pre-information literate--the components of the online information environment. Not to do so in an active, concerted manner will mean that information needs for significant parts of the population will remain unidentified, unexpressed, and unmet, while the great information apparatus goes about the business of serving information users with "real needs." However we define and measure the achievement of information literacy in the end, it will likely be the yardstick by which we come to measure the essential social equity of the emerging Information Society.

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